

# MONTHLY WEATHER REVIEW,

## AUGUST, 1874.

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WAR DEPARTMENT,

Office of the Chief Signal Officer,

DIVISION OF

TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE

### INTRODUCTION.

In the preparation of this Review, besides the regular reports from the Signal Service Stations, U. S. Army, and the Canadian Stations, monthly meteorological registers, from many volunteer observers, and from Post Surgeons, forwarded by the Surgeon General, U. S. Army, and other data, have been examined. The accompanying charts illustrate, approximately, the courses of low barometers, the curves of mean atmospheric pressure and temperature, the prevailing direction of the wind and the distribution of rain.

The month has been characterized by an absence, comparatively, of destructive storms; by a deficiency of barometric pressure and continued high temperatures from southern Dakota to the Ohio valley and southward over the Gulf States; by extraordinary rain-falls over the southern New England coast and Long Island; by cooler weather than usual over the Atlantic States, Lake region and St. Lawrence valley; and by droughts in the Lower Lake region, Ohio valley, Gulf States and from Nebraska and Iowa southward, destroying crops in the two last sections.

### BAROMETRIC PRESSURE.

Chart No. II shows the distribution of the pressure for the month, as represented by the curves in black. It is somewhat above the average over the Lake region. Over the remainder of the country it is below, especially from Kentucky and Tennessee to the Southwest and the Northwest. The latter is accounted for by the unusual number of low barometers which have moved down the Missouri valley, while others, traced over the Lake region, left slight depressions in those sections, which gradually disappeared, some of which have been traced. An examination of chart No. I will render this apparent.

*Areas of low barometer* accompanying chart No. I, shows that the paths of the centres of eleven have, approximately, been traced. Their centres have been located for each synchronous observation, (three times daily,) and these connected. In case of doubt as to their positions, they were united by broken lines. Such are observed during every month, as many pass to the north of the Lower Lake region and the St. Lawrence valley on their way eastward. Frequently they leave minor depressions within the limit of the stations. In detail they are as follows:

No. I properly belongs to July, having moved from Dakota eastward over the Upper Lake region to the St. Lawrence valley on the 29th, 30th and 31st ultimo. On the 1st

and 2d instant it disappeared to the eastward, having been accompanied by generally light thunder storms from the Lower Lakes, Ohio valley, Tennessee and the South Atlantic States eastward. A hurricane prevailed on Mt. Washington on the 1st, and a tornado at Troy, N. Y., on the 2d.

No. II was first felt on the 3d at the Rocky Mountain stations by cloudy, threatening or rainy weather and brisk southerly winds. Very heavy hail fell on the "divide," between Denver and Colorado Springs, Colorado. At the latter place a bank of water passed down the creek at 7 p. m., sweeping everything, and supposed to have been caused by the hail-storm. On the 4th the barometer fell quite rapidly from the upper Mississippi valley westward, with increasing east to south winds. At St. Paul violent high winds prevailed during the evening. The centre passed within the limit of the stations on the 4th, and down the Missouri valley on the 5th, with threatening or rainy weather from thence to the Upper Lakes. On the 6th it separated into two, one gradually disappearing over the Indian Territory, the other following the course shown on the chart. Cloudy or rainy weather accompanied it, except in the Gulf States. Remarkably heavy rains fell on the middle Atlantic and New England coasts, with brisk and high easterly winds. Violent thunder-storms are reported as having occurred in Ohio, Indiana, New York, Pennsylvania and North Carolina.

No. III passed to the south and east of Nova Scotia on the 6th, producing rain and brisk east to north winds in that section. It was evidently a cyclone, and most severe at some distance off the coast. A sailing vessel reported having experienced a hurricane for eight hours upon this date in that vicinity, the wind backing from east to north.

No. IV was first observed by the falling barometer and high temperature on the 8th and 9th at the stations in the Rocky Mountains and the Lower Missouri valley. From Nebraska and Iowa southward to the Gulf States, the temperature continued rising, and thermometer readings varying from 100° to 106° were reported for several days. On the 10th the centre moved within the limit of the stations; on the 11th, northeastward over Lake Superior into Canada; on the 12th, to the north of the St. Lawrence valley, leaving depressions in the Lower Missouri valley and New England. Occasional rain fell during its progress over the Northwest and the Lake region, but became quite general, with severe thunderstorms, in New England and the Middle States. A destructive tornado prevailed at Dixon, Illinois, and a gale at St. Paul during the night of the 10th; violent northwest winds at Davenport, Iowa, on the night of the 11th; hurricane on Mt. Washington and severe thunder-storm at Berlin Heights, Ohio, on the night of the 12th.

No. V moved eastward from Dakota on the 15th, 16th and 17th over the Upper Lake region into Canada, accompanied by occasional rain, with high winds at St. Paul on the evening of the 16th, and a hurricane on Mt. Washington during the night of the 18th.

No. VI. During the day the barometer fell very rapidly over the Northwest, with brisk south and east wind, and during the night of the 18th the central depression passed from Dakota to Minnesota, and thence, on the 19th, over Lake Superior into Canada. Rain fell in the Northwest and Lake region, and at places high winds prevailed.

No. VII advanced from Dakota on the 20th. The peculiarity of this consist in that it sent out in advance a secondary depression over the Middle Atlantic coast, producing at places severe thunder-storms. In the States east of the Rocky Mountains rainy weather accompanied them, with also severe thunder-storms in the Southern States.

No. VIII, appearing from Dakota, moved down the Missouri valley and disappeared over the Southwest without producing any serious disturbance.

Nos. IX and X. The low barometric readings at the Rocky Mountain stations on the 26th and 27th indicated the presence of a serious disturbance. On the 27th the pressure rapidly diminished from the Upper Mississippi valley westward, and on the 28th there appeared an extensive trough of low barometer, extending from Indian Territory northward over Minnesota and Manitoba, but being lowest over the latter and the Lower Missouri valley. Previous to this time it is probable there was one low barometer, which gradually developed into the two. From the chart it will be seen that No. IX, after separating into three distinct areas, finally disappeared in the Southern States and Ohio valley. In their movement across the country cloudy or rainy weather became quite general, except in the West Gulf States, Lower Lake region, Middle States and New England, with very serious and destructive storms. Heavy rains and high winds are reported from Iowa, Tennessee, Georgia, Louisiana, and no doubt occurred in all the Southern States.

No. XI was of minor importance, producing rain in Maine and the eastern British Provinces. It apparently united with No. X over the mouth of the St. Lawrence river.

*Areas of high barometer.*—Of the most marked, the *first* apparently extended itself southeastward, on the 2d and 3d, from Manitoba over the Lake region, and on the 4th and 5th over the Atlantic States. The *second*, following low barometer No. IV, first appeared over the Lake region, from Manitoba, on the 12th and 13th, where it remained nearly stationary until the 15th, and extended itself over the Middle States and to the East Atlantic coast on the 16th and 17th. On the 18th and 19th, the *third* gradually appeared over the Lower Lake region, Middle and South Atlantic States, which extended over the South Atlantic and East Gulf States on the 19th and 20th, and then slowly disappeared. The *fourth*, following low barometer No. VII, was felt over the Lake region on the 24th, moved over New England and the Middle States on the 25th, and disappeared on the 28th in advance of depressions Nos. IX, X and XI. On the 31st, the *fifth* moved southeastward over the Lake region, succeeding low barometers Nos. IX and X. The movement of these areas has been confined principally to the Lake region and the Atlantic States. They have been more prominent than heretofore for August, and have failed to reach the Southern and Western States, especially the Southwest and West, over which sections the barometer has continued low for longer periods than usual.

## ATMOSPHERIC TEMPERATURE.

The curves, in red, upon chart No. II, are the mean isothermal lines for the month. The table, upon the same, gives the average mean temperatures of the different geographical districts for August of this year, as well as those for a number of years. Throughout the Atlantic States it has been the coolest August for many years, and is explained by the movement of the areas of high barometers, with north and east winds, over these districts. In the Gulf States and northward to Ohio, Indiana, Illinois, Iowa and Nebraska it has been an extremely hot month, especially between the 4th and 14th, the thermometer ranging from 100° as high as 114° for several days at a time. In that portion west of the Mississippi the extreme heat continued for several weeks, and the mean temperature ranged from 1° to 8° above the average. This hot weather is